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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,246	12/12/2003	Keiichi Serizawa	246632US2	9473

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EXAMINER	
PHAM, HAI CHI	

ART UNIT	PAPER NUMBER
2861	

DATE MAILED: 06/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

08

Office Action Summary	Application No.	Applicant(s)	
	10/733,246	SERIZAWA ET AL.	
	Examiner	Art Unit	
	Hai C. Pham	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) *6-18,21 and 22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,19 and 20* is/are rejected.

7)☒ Claim(s) *5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-4 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima et al. (Pub. No. U.S. 2004/0036936) in view of Suzuki et al. (Pub. No. U.S. 2003/0156310).

Nakajima et al. discloses an optical scanner in an image forming apparatus comprising a scanning optical system (polygon mirror 100) that forms an optical scanning path, a pair of optical detecting units (two sensor parts 230) arranged at two positions on the optical scanning path for detecting a write-start position and a write-end position to measure a time for scanning from the write-start position to the write-end position (the two sensor parts 230 are fixed to the bottom surface 210 of the optical housing at both ends out of the writing area of the optical path to the photoconductor drum 121) (Fig. 10 shows only one of the pair of sensor parts 230) (paragraphs [0239], [0241]), and an optical housing (housing 210) (Fig. 15) that houses at least the scanning optical system and the optical detecting units, wherein the optical detecting units are mounted on the optical housing via an intermediate member (a series of sensors 230 corresponding to

the respective color beams are fixed to the bottom surface of the housing via the common substrate 233) (Fig. 10).

With regard to claim 19, Nakajima et al. also teaches in Fig. 16 the image forming apparatus including an image carrier (photoconductor drums 301), forming a toner image by developing an electrostatic latent image written on the image carrier with a toner (using the developer rollers 303), and transfers the toner image onto a recording medium (using the transfer belt 310), and a fixing unit (fusing rollers 317) that fixes the toner image transferred on the recording medium (paragraphs [0052] and [0248]-[0250]).

Although Nakajima et al. teaches the optical housing being formed of a material whose thermal expansion coefficient is relatively large such as aluminum die cast (paragraph [0242]), Nakajima et al. fails to teach the intermediate member or substrate (233) having a thermal expansion coefficient smaller than that of the optical housing.

Suzuki et al. teaches an image forming apparatus having optical sensors (Pi) mounted on the fixing plate (22S) made of a material having a thermal expansion coefficient not more than $1.0 \times 10^{-5}/^{o}C$ (paragraph 0109]), which is far smaller than the coefficient of the aluminum alloy of $2.4 \times 10^{-5}/^{o}C$ (paragraph 0110]).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the intermediate member/mounting substrate with a low thermal expansion coefficient as compared to that of the optical housing to secure the pair of sensors in the device of Nakajima et al. as taught by Suzuki et al. The purpose for doing so would have been to prevent misalignment of the optical path with respect to the beam-sensing units.

Nakajima et al. further teaches:

- the intermediate member is mounted on the optical housing at a position having least thermal deforming (the sensor parts are positioned at the far ends of the housing with respect the heat-generating source in the motor driving the polygon mirror 100, which is located in the middle of the optical housing),
- a side of the write-start position of the intermediate member is mounted on the optical housing (the substrate 233 is fixed to the bottom surface of the optical housing at the write-start and write-end positions of the optical scanner),
- the scanning optical system forms a plurality of optical scanning paths (Fig. 16),
- the intermediate member is fixed to the image forming apparatus together with the optical housing, by using a mounting member (the optical housing on which is mounted the substrate 233 is fixed to the frame of the image forming apparatus by screws) (Fig. 15).

Allowable Subject Matter

3. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

4. Applicant's arguments with respect to claims 1-4 and 19-20 have been considered but are moot in view of the new grounds of rejection.

Response to Arguments

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vip Patel can be reached on (571) 272-2458. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hai C. Pham

HAI PHAM
PRIMARY EXAMINER
June 11, 2006